

Gaza Rocket fire into Israel statistics and p-value calculations (2005 - 2025)

 ANTHONY OF BOSTON
AUG 22, 2025



Share

Gaza Rocket Fire Stats (2005 - 2025)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
----	----	----	----	----	----	----	----	----	----	----	----	----
2005	40	5	23	34	77	129	211	50	61	26	42	76
2006	7	9	41	79	54	140	191	41	40	52	157	50
2007	28	43	31	25	257	63	61	81	70	53	65	113
2008	136	228	103	373	206	153	4	8	1	1	125	361
2009	345	52	34	5	1	2	1	1	10	1	4	4
2010	13	5	35	5	14	14	13	14	16	3	5	15
2011	17	6	38	87	1	4	20	145	8	52	11	30
2012	9	36	173	10	3	83	18	21	17	116	173	1
2013	0	1	4	17	1	5	5	4	8	3	0	4
2014	22	9	65	19	4	62	2874	950	0	1	0	1
2015	0	0	0	1	1	3	1	3	4	5	3	4
2016	6	0	5	0	2	0	2	1	0	0	0	0
2017	0	7	2	1	1	1	2	1	0	1	0	7
2018	6	4	0	0	70	64	174	8	0	0	17	0
2019	0	0	3	0	600	3	0	0	1	0	455	4
2020	8	104	0	0	1	3	3	15	13	3	3	2
2021	3	0	0	45	4375	0	0	1	2	0	0	0
2022	0	0	0	5	0	1	4	1100	0	0	4	1
2023	1	0	0	66	1470	0	6	0	0	8500	2000	1000
2024	357	165	104	113	452	205	216	116	26	76	2	71
2025	24	3	15	20	35	31	46	-	-	-	-	-

List of dates of when Mars was within 30 degrees of the lunar node

- May 29, 2005 – Aug 29, 2005
- Nov 17, 2005 – Dec 27, 2005
- Jul 20, 2006 – Oct 14, 2006
- Mar 19, 2007 – May 30, 2007
- Apr 28, 2008 – Jul 31, 2008
- Jan 08, 2009 – Mar 24, 2009
- Aug 24, 2009 – May 02, 2010
- Nov 02, 2010 – Jan 18, 2011
- Jun 11, 2011 – Sept 01, 2011
- Aug 24, 2012 – Nov 12, 2012
- Apr 03, 2013 – Jun 22, 2013
- Dec 19, 2013 – Aug 28, 2014
- Jan 27, 2015 – Apr 12, 2015
- Sept 27, 2015 – Dec 26, 2015
- Nov 21, 2016 – Feb 01, 2017
- Jul 11, 2017 – Oct 10, 2017
- Apr 08, 2018 – Nov 14, 2018
- May 01, 2019 – Jul 29, 2019
- Jan 15, 2020 – Apr 03, 2020
- Feb 09, 2021 – May 13, 2021
- Nov 04, 2021 – Jan 22, 2022
- Jun 22, 2022 – Sept 19, 2022
- Dec 26, 2022 – Jan 24, 2023
- Aug 24, 2023 – Nov 15, 2023

- Apr 12, 2024 – Jun 25, 2024
- Jun 05, 2025 – Sept 04, 2025

Between 2005 and 2025, more rockets were fired at Israel when Mars was within 30 degrees of the lunar node

- Total rockets: 31,341
- Rockets fired when Mars is within 30 degrees of the lunar node: 24,044
- Observed proportion: $24,044 \div 31,341 \approx 0.7672$ (76.72%)
- Expected proportion under H_0 : 0.3765
- Expected rockets when Mars is within 30 degrees: $31,341 \times 0.3765 \approx 11,799.89$
- Rockets fired outside specified Mars periods: $31,341 - 24,044 = 7,297$
- Expected rockets outside specified periods: $31,341 \times (1 - 0.3765) \approx 19,541.11$
- P-Value for Higher Number of Rockets: The p-value for the hypothesis that a higher number of rockets will be fired when Mars was within 30 degrees of the lunar node is approximately 0 ($< 10^{-30}$). This is statistically significant ($p < 0.05$) indicating overwhelming evidence that more rockets (76.72%) fired during these periods than expected (37.65%) indicate greater than chance probability.

Total years with peak month of rocket fire occurring while Mars is within 30 degrees of the lunar node: 20 out of 21 years (2005–2025, except 2016).

- Years with Peak Month Coincidence: 20 years (2005–2015, 2017–2025) had their peak month of rocket totals coincide with Mars being within 30 degrees of the lunar node.
- P-Value for Peak Month Coincidence: The p-value for the hypothesis that the peak month of rocket fire coincides with Mars being within 30 degrees of the lunar node more often than expected is approximately 4.761×10^{-8} . This is

statistically significant ($p < 0.05$), providing strong evidence that peak months of rocket fire are more likely to occur during these periods than expected by chance.

12 out of 21 years (2005, 2009, 2010, 2013, 2014, 2015, 2018, 2019, 2020, 2021, 2022, 2023) had the majority (>50%) of the total annual rockets fired when Mars was within 30 degrees of the lunar node.

- Number of years: 12 years (2005, 2009, 2010, 2013, 2014, 2015, 2018, 2019, 2020, 2021, 2022, 2023) had the majority of the total annual rocket fire occur when Mars was within 30 degrees of the lunar node.
- P-value: The p-value for the hypothesis that more years than expected will have the majority of the total annual rocket fire during these periods is approximately 0.0933.
- Statistical significance: **The result is not statistically significant at $\alpha = 0.05$ ($p > 0.05$) but is significant at $\alpha = 0.10$** , providing moderate evidence that more years had the majority of total annual rocket fire when Mars was within 30 degrees of the lunar node than expected by chance.

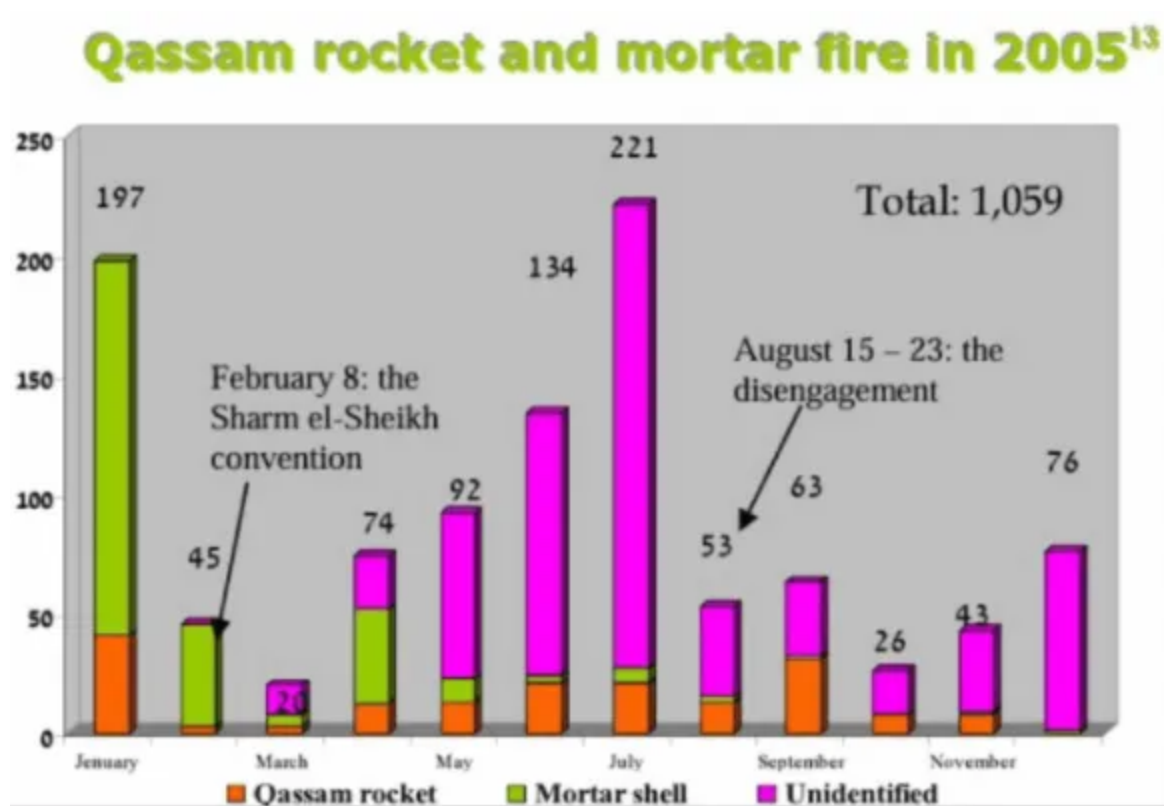
Here are future dates of when Mars is within 30 degrees of the lunar node

- Feb 4, 2026 – Apr 19, 2026
- Sep 27, 2026 – Jun 12, 2027
- Dec 2, 2027 – Feb 12, 2028
- Jul 11, 2028 – Oct 5, 2028
- Sep 23, 2029 – Dec 9, 2029
- May 3, 2030 – Jul 24, 2030
- Jan 24, 2031 – Sep 28, 2031

- Feb 24, 2032 – May 13, 2032
- Oct 30, 2032 – Jan 30, 2033
- Dec 12, 2033 – Mar 2, 2034
- Aug 17, 2034 – Nov 12, 2034
- May 1, 2035 – Dec 2, 2035

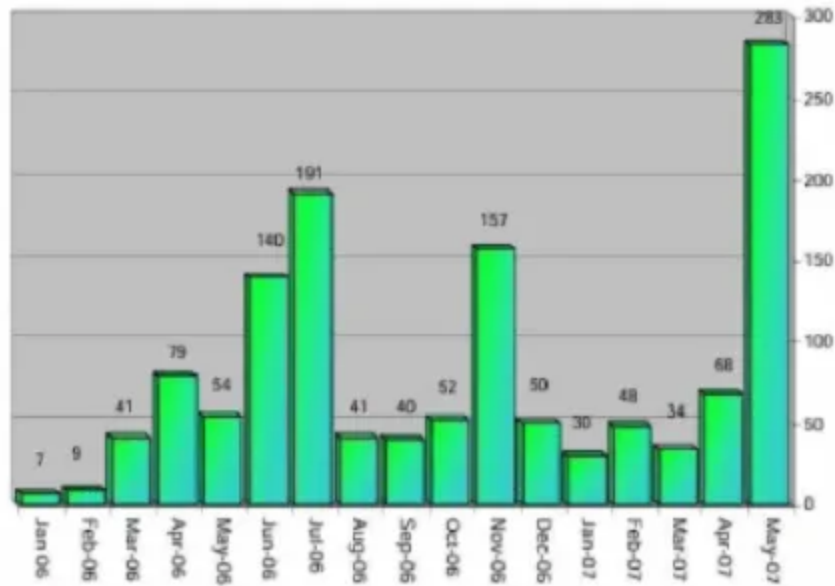
Sources for rocket fire data:

2005 Source: <https://www.terrorism-info.org.il/en/18892>



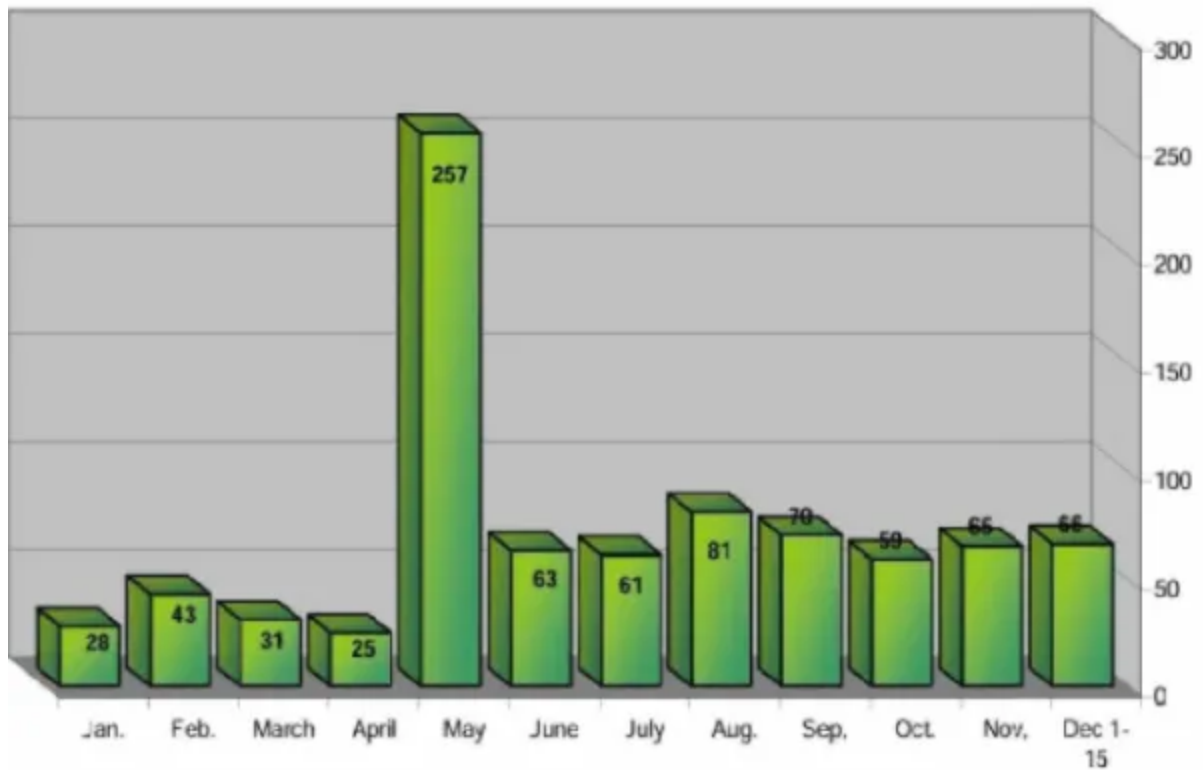
2006 Source: <https://www.terrorism-info.org.il/en/18614>

Monthly distribution of identified rocket hits



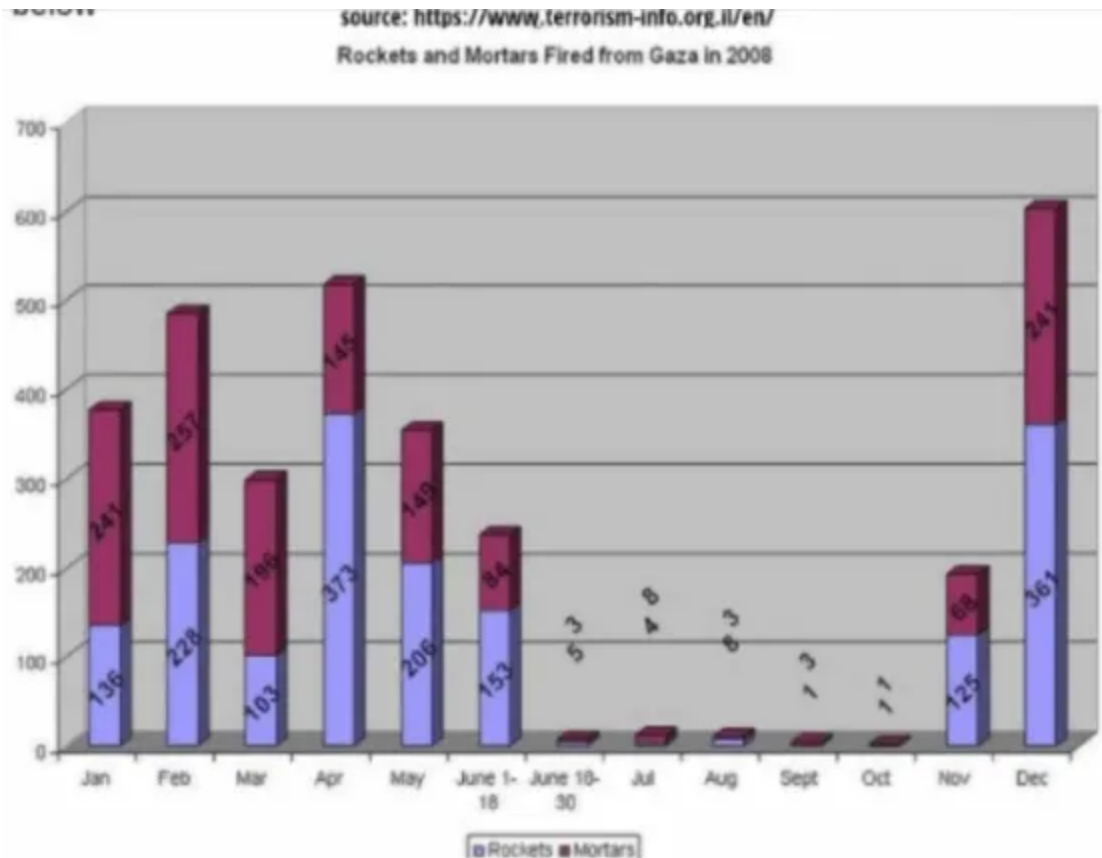
2007 Source: <https://www.terrorism-info.org.il/en/18534>

Monthly distribution of identified rocket hits



2008 Source:

https://en.wikipedia.org/wiki/List_of_Palestinian_rocket_attacks_on_Israel_in_2008



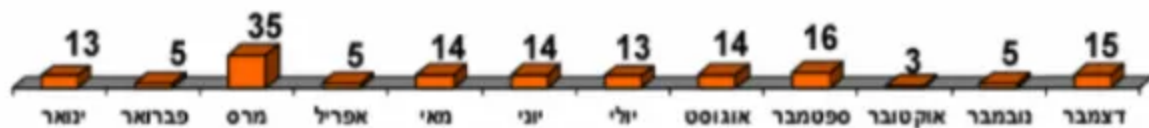
2009 Source: <https://shabak.gov.il/reports>



2010 Source: <https://shabak.gov.il/reports>

שיגורי רקטות מהרצועה בחתר חודשי 2010

סה"כ: 152 שיגורים



2011 Source:

https://en.wikipedia.org/wiki/List_of_Palestinian_rocket_attacks_on_Israel_in_2011

2012 Source:

https://en.wikipedia.org/wiki/List_of_Palestinian_rocket_attacks_on_Israel_in_2012

2013 Source: https://en.wikipedia.org/wiki/List_of_Palestinian_rocket_attacks_on_Israel_in_2013

2014 Source: https://en.wikipedia.org/wiki/List_of_Palestinian_rocket_attacks_on_Israel_in_2014

2015 Source:

https://en.wikipedia.org/wiki/List_of_Palestinian_rocket_attacks_on_Israel_in_2015

See Jewish virtual library for statistics between 2016 and 2022

<https://www.jewishvirtuallibrary.org/palestinian-rocket-and-mortar-attacks-against-israel> In 2023, the data was taken from both

<https://www.jewishvirtuallibrary.org/palestinian-rocket-and-mortar-attacks-against-israel> and

Wikipedia

https://en.wikipedia.org/wiki/List_of_Palestinian_rocket_attacks_on_Israel_in_2023

The 2024 and 2025 data was taken from <https://www.shabak.gov.il/reports/>

Discussion about this post

Comments Restacks



Write a comment...

© 2025 Anthony of Boston · [Privacy](#) · [Terms](#) · [Collection notice](#)
[Substack](#) is the home for great culture